Amendments to the Specification:

Please replace the paragraph beginning at page 21, line 9, which starts with "Detector assembly 30", with the following amended paragraph:

Detector assembly 30 comprises an evacuable enclosure 44 adjacent to detector array 32. The front side of enclosure 44, between array 32 and sample 22, is closed off by window 34, and the enclosure is evacuated during operation. Preferably, the distance D from array 32 to window 34 is at least equal to the length L of the array, measured from a first detector element 46 to a last detector element 48, and is most preferably at least two to three times the length L of the array. (First detector element 46 is positioned to capture the lowest-angle reflected photons, around 0°, while last element 48 captures the highest-angle photons, typically near 3°.) The inventors have found that removal of the air from the region immediately in front of the array, along with distancing the window from the array, substantially reduces the number of scattered X-ray photons that reach the array. When array 32 operates in air, or when window 34 is positioned close to the array, scatter of photons reflected from sample 22 at low angles ordinarily makes a substantial contribution to the signal background at high angles. Because the low-angle reflections are generally so intense by comparison with the high-angle reflections, this background significantly degrades or even masks the high-angle signal. The use of window 34 and evacuated enclosure 44, as shown in Fig. 2, eliminates most of this scatter background, without the difficulty and expenses of having to evacuate the entire system.

Amendments to the Drawings:

The attached drawing sheet includes changes to FIG. 2. This sheet replaces the original sheet including FIG. 2. In FIG. 2, the distance D between window 34 and array 32 is shown to be at least equal to the length L of the array 32 to illustrate the claimed subject matter.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes